

DEFENSIVE PUBLICATION

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T909,004

CALENDERING DOCTOR BLADE CAST CERAMIC SHEETS TO CONTROL ANISOTROPIC FIRING SHRINKAGE

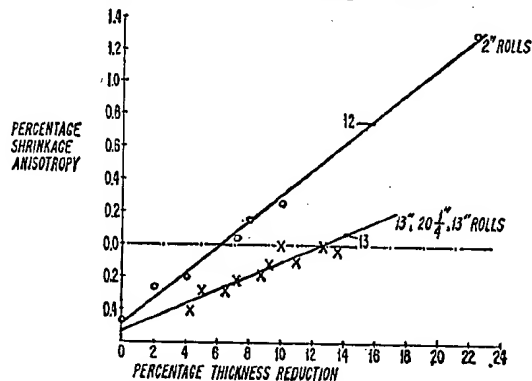
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U.S. Cl. 264—56

1 Sheet Drawing. 8 Pages Specification



A green ceramic sheet produced by doctor blade casting of a particulate slip containing, e.g., finely divided alumina, polyvinyl butyral, dibutyl phthalate, a wetting agent and a solvent for the polyvinyl butyral, is characterized by shrinkage anisotropy, i.e., the shrinkage of the sheet measured after firing is less in the casting direction than in the transverse direction. This anisotropy can be substantially eliminated by subjecting the green sheet to an experimentally determined thickness reduction achieved by passing the dried sheets through a series of pressurized rolls which also elongates and densifies the dried sheet. Factors that are significant to the effect of thickness reduction on the elimination of shrinkage anisotropy are temperature, roll diameter, roll pressure, roll speed, and the composition of the casting slip. Also, another application is mentioned wherein the shape of the doctor blade and the material used in its construction can be specially designed and selected to reduce shrinkage anisotropy.

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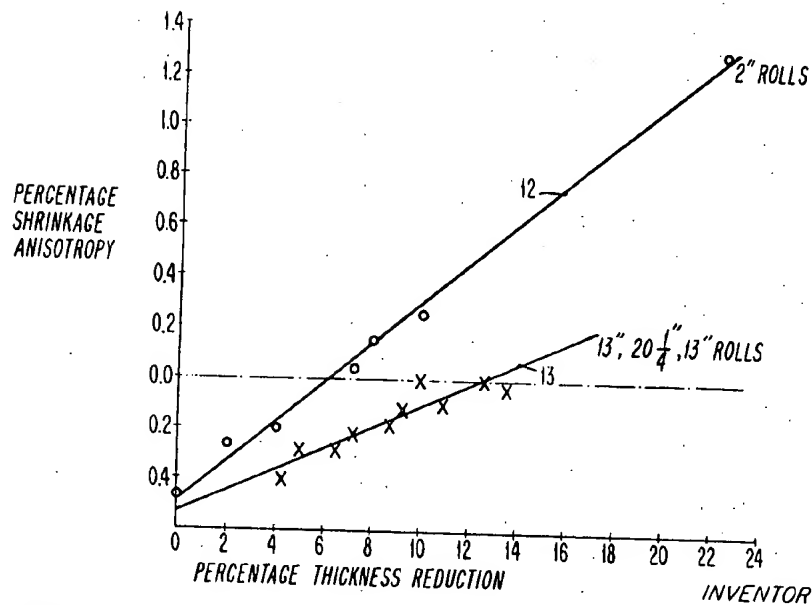
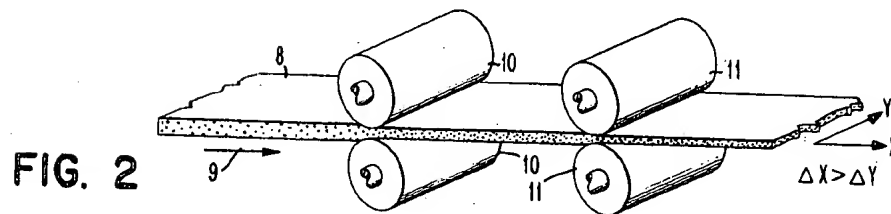
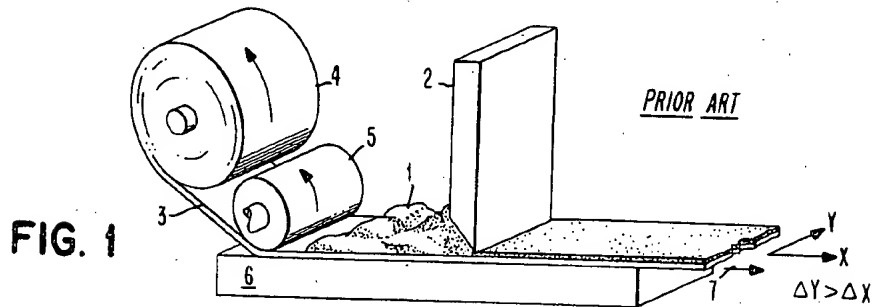


FIG. 3

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